DOCUMENTING SAMPLE CONTROL

1. PURPOSE

This procedure describes documenting the control of physical samples.

2. SCOPE

This procedure governs sample collection and sample request activities conducted during Lawrence Berkeley National Laboratory (LBNL) Yucca Mountain Site Characterization Project (YMP) scientific investigations, and applies to LBNL personnel and support participants (hereafter referred to as staff) working under the YMP-LBNL quality assurance program.

3. PROCEDURE

3.1 General Sample Identification and Traceability

3.1.1 All **Staff** shall ensure that sample identification and control is adequately documented to permit tracking of a sample or parts thereof, from its origination through all analytical or other processing including handling, preservation, shipment, transfer, analysis, and storage, to its present location or final use.

3.1.2 Prior to using a sample, the **Principal Investigator** (**PI**) **or staff** shall document in a scientific notebook (or in a scientific notebook supplemental record) the sample identification number and other planning or task information that ties it to a YMP Activity.

3.1.3 The **PI or staff** shall label a sample, or part thereof, with physical markings, if possible, by placing a unique identifier on the sample or its container. Physical markings shall:

a. be clear and legible,
b. be non-detrimental to the sample content or form,
c. not be obliterated or hidden by surface treatments or sample preparation unless other means of identification are substituted,
d. indicate, if necessary for the proper handling, storage and shipping of the sample, the presence of special environments or the need for special controls.

If physical markings are either impractical or insufficient, other means of identification, such as physical separation, container labels or tags, or administrative controls, shall be used.

3.1.4 If planning documents contain specific identification or traceability requirements for samples, the documents shall be referenced in the scientific notebook and those specified controls shall be implemented.

3.2 Field Sample Origination

3.2.1 For samples collected in the field, the **PI or staff** shall document in a scientific notebook, or in accordance with a YMP-LBNL-Technical Implementing Procedure (TIP) prepared per YMP-LBNL-QIP-5.2, *Preparing Quality and Technical Implementing Procedures*, as appropriate, the:

a. unique sample identification number,
b. date sample was taken,
c. type of sample,
d. collection method,
e. field location, including site type and site description,

NOTE: Site descriptions shall provide enough information to allow the site to be located by personnel (with equivalent experience) who are independent of the Collector.

f. specifics on sample orientation relative to the location, as appropriate, and
g. sample size (weight, volume, etc.)

3.2.2 All sample collection activities shall be coordinated through the Sample Management Facility (SMF). **PIs or staff** shall use the identification labels provided by the SMF, and submit a Sample Collection Report to the SMF in accordance with YMP Administrative Procedure (YAP)-SII.4Q, *Collection, Submission, and Documentation of Non-Core and Non-Cuttings Samples to the Sample Management Facility for Site Characterization*. Samples may be stored at the SMF or at LBNL, provided identification labels have been obtained, and the Sample Collection Report has been submitted to the SMF.

NOTE: Use of the SMF identifier is not optional. It is required for project specimens and also functions to link the collector's sample ID, if any, on the Sample Collection Report.

NOTE: If the Sample Collection Report is not submitted to the SMF, the collected specimen(s) will not be considered valid for Project use.

PIs or staff may also use their own unique identifiers providing they maintain traceability to the SMF sample identification number.
Sample derivatives (pieces) do not need SMF identification labels, but must be traceable to the original sample.

3.3 Laboratory Sample Origination

For samples produced in the laboratory, the **PI or staff** shall document, as appropriate, in a scientific notebook or the appropriate TIP the:

a. method of preparation (or reference to the appropriate TIP),
b. assignment of a unique identification number to the sample (and on the sample if possible),
c. special safety, preserving, and handling information, and
d. other relevant information about the sample.

3.4 Obtaining or Receiving Samples

3.4.1 When requesting samples from the SMF, the **Requester** shall follow procedures YAP-SII.1Q, *Submittal, Review, and Approval of Requests for Yucca Mountain Site Characterization Project Geologic Specimens*, YAP-SII.2Q, *Requesting Samples for Examination at the Yucca Mountain Site Characterization Project Sample Management Facility*, and YAP-SII.4Q, *Collection, Submission, and Documentation of Non-Core and Non-Cuttings Samples to the Sample Management Facility for Site Characterization*.

3.4.2 When receiving samples (transferring responsibility) from another staff member or organization, the **Recipient** shall document the receipt in a scientific notebook and ensure the notebook entry includes the original unique identifier and the SMF identifier (if available), and any information provided by the Sender for the proper handling, storage and shipping of the sample, the presence of special environments or the need for special controls for the samples, as appropriate.

3.4.3 When samples are received in a condition unacceptable for the intended use, they may be returned to the sender with documentation of how the sample was received. The **Recipient** shall document this information in a scientific notebook. The **PI or staff** shall then determine the need for further corrective actions according to Section 3.9 of this procedure, Nonconforming Samples.

3.5 Sample Storage

PIs or staff shall:

3.5.1 store each sample under physical conditions that are sufficient to preserve it for its intended purpose(s), for a duration within its expected storage life, or as required by a TIP;

3.5.2 document special storage requirements in a scientific notebook, or as required by a TIP; and

3.5.3 maintain or replace identification markings, if applicable, that have been damaged or may deteriorate.

3.6 Sample Handling

PIs or staff shall document, as appropriate, in a scientific notebook, or in a TIP:

3.6.1 methods for cleaning a sample,

3.6.2 special equipment, protective environments, and packaging,

3.6.3 safety precautions, and

3.6.4 any other special controls.

3.7 Sample Shipping

PIs or staff shall document, as appropriate, in a scientific notebook, or in a TIP:

3.7.1 the unique identifier for each sample or shipping container,

3.7.2 if shipment is by commercial carrier, the invoice number (or other shipping numbers which can be used to track the sample) for the shipment, and

3.7.3 special packaging environments or controls.

3.8 Sample Archiving

Samples that are no longer needed for study on the YMP shall be disposed of by staff as appropriate by:

3.8.1 submitting, or returning, samples to the SMF in accordance with procedure YAP-SII.1Q, *Submittal, Review, and Approval of Requests for Yucca Mountain Site Characterization Project Geologic Specimens*;

3.8.2 for samples that can not be returned to the SMF (for example, because of contamination), submitting to the SMF documentation concerning the circumstances and status of the samples;

3.8.3 documenting the final disposition of the samples in a scientific notebook, and whether they were sent to the SMF or disposed of by other means.

3.9 Nonconforming Samples

Samples that do not meet specified requirements, lose traceability, or are determined by the Staff to have been compromised, are considered to be nonconforming samples. Disposition shall be limited to ‘use-as-is’, ‘limited-use’, or ‘discard’ as addressed in AP-15.2Q, *Control of Nonconformances*.

PIs or staff shall control the use of nonconforming samples in accordance with procedure AP-15.2Q, and coordinate with the Engineering Assurance (EA) Manager for issuance of a non-conformance report.

4. RECORDS

4.1 QA Records

Scientific Notebooks

Other documents for sample control and identification (e.g., supplemental records to scientific notebooks)

4.2 Non-QA Records

None

4.3 Controlled Documents

None

4.4 Records Center Documents

Records associated with this procedure shall be submitted to the Records Processing Center (RPC) in accordance with AP-17.1Q *Record Source Responsibilities for Inclusionary Records*.

5. RESPONSIBILITIES

5.1 The **Principal Investigator** is responsible for overseeing the implementation of this procedure.

5.2 **Staff Members** involved in any part of this procedure are responsible for carrying out the documentation activities identified in this procedure and for turning over related documentation to the YMP-LBNL Records Coordinator.

5.3 The **EA Manager** is responsible to assist the PIs and Staff to prepare nonconformance reports for any samples that are nonconforming, as needed.

6. ACRONYMS AND DEFINITIONS

6.1 Acronyms.

AP	OCRWM Administrative Procedure
DOE	U.S. Department of Energy
EA	Engineering Assurance
LBNL	Lawrence Berkeley National Laboratory
M&O	Management & Operating Contractor
OCRWM	Office of Civilian Radioactive Waste Management

PI	Principal Investigator
QA	Quality Assurance
QARD	Quality Assurance and Requirements Document
QIP	LBNL Quality Implementing Procedure
RPC	Records Processing Center
SMF	Sample Management Facility
TIP	LBNL Technical Implementing Procedure
YAP	YMP Administrative Procedure
YMP	Yucca Mountain Site Characterization Project

6.2 Definitions.

Sample Management Facility (SMF). The SMF is the facility used for the documentation, storage and control of samples, specimens and remnants collected and dispersed for analysis and evaluation by users. The SMF consists of a physical facility and equipment designed to effectively process and conserve preserved collected samples.

Principal Investigator (PI) or Staff Member. Any scientist, engineer, research or technical associate, technician, or student research assistant performing scientific or quality affecting work.

YMP Activity. Any work performed for YMP under a planning document such as the *Site Characterization Plan*, test plans, study plans, Technical Work Plans, or job packages.

7. REFERENCES

DOE/RW/0333P, *Quality Assurance Requirements and Description*, Supplement II, "Sample Control"

AP-15.2Q, *Control of Nonconformances*

AP-17.1Q, *Record Source Responsibilities for Inclusionary Records*

AP-SIII.1Q, *Scientific Notebooks*
YAP-SII.1Q, *Submittal, Review, and Approval of Requests for Yucca Mountain Site Characterization Project Geologic Specimens*

YAP-SII.2Q, *Requesting Samples for Examination at the Yucca Mountain Site Characterization Project Sample Management Facility*

YAP-SII.4Q, *Collection, Submission, and Documentation of Non-Core and Non-Cuttings Samples to the Sample Management Facility for Site Characterization*

YMP-LBNL-QIP-5.2, *Preparing Quality and Technical Implementing Procedures*

8. ATTACHMENTS.

None.

9. REVISION HISTORY.

9/22/95 - Revision 0, Modification 1:
Administrative refinement in identifying lifetime and non-permanent records and controlled documents.

9/13/96 - Revision 1, Modification 0:
Revised procedure to reflect requirements changes in QARD, Rev. 5.

09/06/00 – Revision 1, Modification 1:
Revisions to reflect YMP-LBNL organizational changes, formatting to match YMP-LBNL-QIP 5.2, and clarifying wording to better represent YAP-SII.4Q.

03/02/01- Revision 1, Modification 2
Clarification that all YMP sample collection/request activities shall be coordinated through the SMF. Updated references to current AP-15.2Q.

10. APPROVAL

Preparer: Nancy Aden-Gleason	Date
Technical Reviewer: Timothy Kneafsey	Date
Technical Reviewer: Qinhong (Max) Hu	Date
EA Reviewer: Don Mangold	Date
M&O QA Concurrence: Stephen Harris	Date
Project Manager: Gudmundur Bodvarsson	Date